Name:

Class Per:

Exhibition #3

**What’s Your Issue?**

**Creating a Piecewise Model**

Objectives:

* You will have the opportunity to model a set of data using piecewise functions.
* You will interpret your data and identify/explain key points within the relationship.

Directions:

1. Find data that is representative of your social issue (enough time to get a spread of data).
2. Create a piecewise function to model the data.
   1. Use 3 or more functions to create your piecewise function.
   2. One of the functions used **must** be a quadratic.
   3. The piecewise function must be continuous (the end points meet).
3. Use Meta-Calculator to create a graph of your piecewise function. This graph needs to have axis labeled, include a title, have the maximum and minimum labeled and each transition point labeled.
   1. You must include a copy of the original graph found (scatter plot or with a line) or you may input the data points onto your Meta-Calculator graph (need a significant number of points to see the correlation).
   2. On a separate piece of paper:
      1. Show the work used to create your equations (2 point used for a straight line, 3 points used for a quadratic)
      2. Prove that the transition points between functions are closed.
      3. Prove that your piecewise function is an accurate model of your social concern data. (Use points from your data and highlight these points on the piecewise function graph.
4. Provide justifications for your work regarding the creation of the piecewise function, proving that the function is continuous and proving that the function is an accurate representation of your data.
5. Analyze you data. Create a claim that can be supported by the piecewise function you have created. Interpret the key features of the original data in terms of the context and explain how your piecewise function accurately models those key features.

Checklist:

\_\_\_ Completed Math Report. Outline provided in class.

\_\_\_ Handwritten proof of continuity in piecewise function.

\_\_\_ Handwritten proof that your piecewise function is an accurate model.

\_\_\_ Communication of the data analysis in the documentary.

\_\_\_ Self Assessment

**Do not sign until you are done with the entire project; THIS SHEET MUST BE TURNED IN ON FINAL DUE DATE!**

By signing below, you verify that each of these deliverables was completed to the best of your ability (with complete sentences when necessary), all of the work submitted was your own.

Student Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Name:**

**Class:**

*INSERT SOCIAL CONCERN*

*Math Report*

**Piecewise Function**

*Go to insert -> equation*

**Graphs**

*The graph you created.*

*The graph of data you found.*

**Justifications**

***Continuity***

*Describe how your attached work proves that each transition point ensures that the piecewise function is continuous.*

***Accurate Model***

*Describe how your attached work proves that your piecewise function is an accurate model of your social concern data.*

**Data Analysis**

*Interpret the key features of the original data in terms of the context (make a claim that can be supported by your piecewise function) and explain how your piecewise function accurately models those key features (maximums/minimums, end behavior and zeros).*